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March 17, 1997

Via Hand Delivery

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Re: Ex Parte Notice, IB Docket No. 96-220

Dear Mr. Caton:

On March 17, 1997, Martin N. Titland and Regan E. Howard of CTA Incorporated, Diane C. Gaylor of Paul, Weiss, Rifkind, Wharton & Garrison, and representatives of Final Analysis Communication Services, Inc. and E-Sat, Inc. met with Tom Tycz, Harry Ng, Cassandra Thomas, Paula Ford, and Julie Garcia of the International Bureau, for the purpose of discussing issues raised in the Commission's Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding. The discussion focussed on the potential for sharing Little LEO spectrum among the proposed systems. The attached handout was distributed at the meeting by the representatives from Final Analysis.

Please contact the undersigned if you have any questions.

Respectfully submitted,

Diane C. Gaylor
Diane C. Gaylor

Attachment

No. of Copies rec'd 021
List ABCDE



Majority Supported Solution to

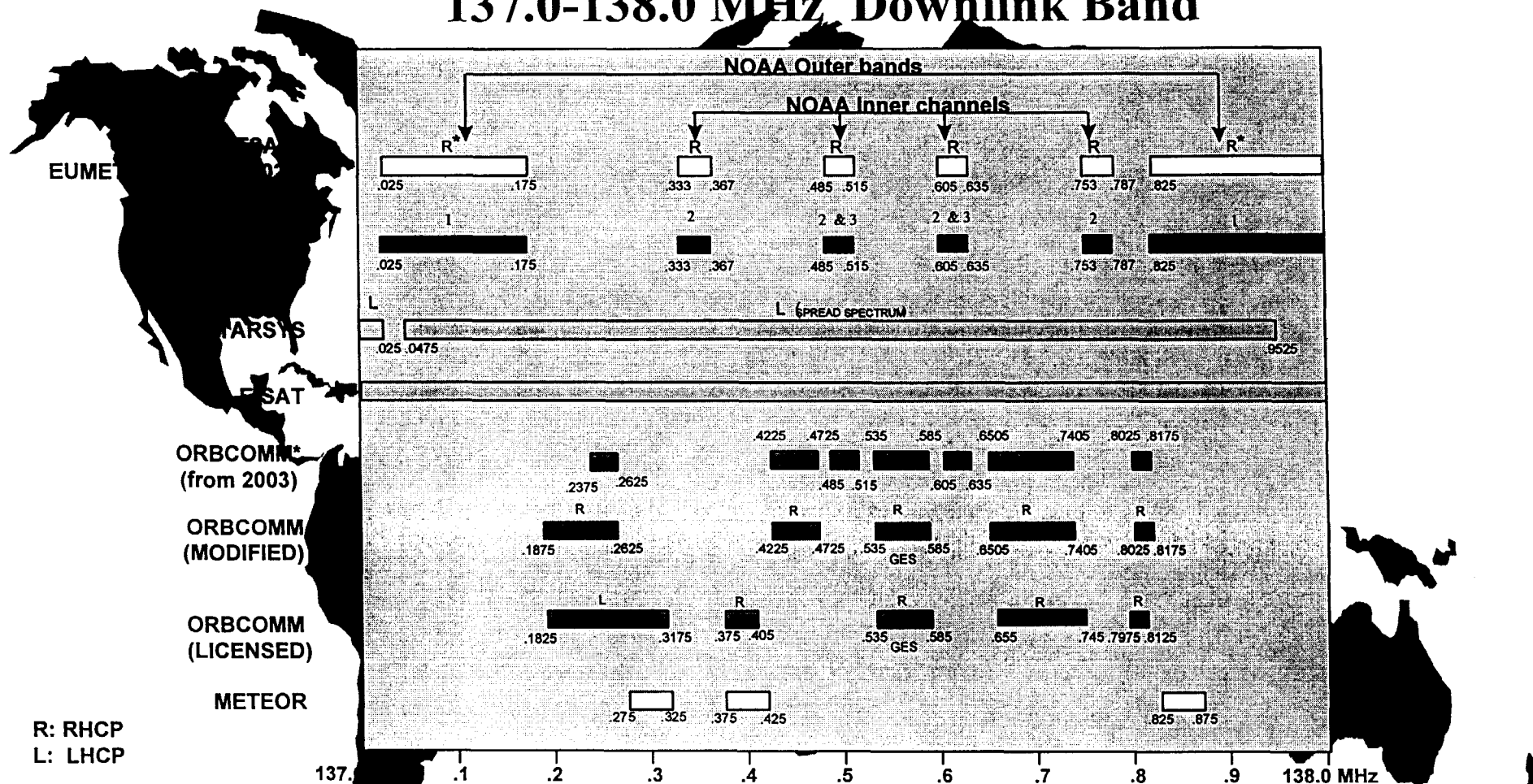
NPRM

Introduction

- ◆ NPRM Systems
- ◆ Proposed Rule X & Y
- ◆ Proposed Rule X & Y
- ◆ Conclusion and Summary

NPRM

137.0-138.0 MHz Downlink Band



*. Effective 2003, NOAA will be using the outer bands (one satellite in 2003, and second satellite in 2007) and OrbcComm will have to migrate its channels from 0.185-0.2375 to two of NOAA's channels.

1. These bands can be used primary till 2002, time share with NOAA afterwards

2. These channels can be used as secondary until January 2000, co-primary afterwards

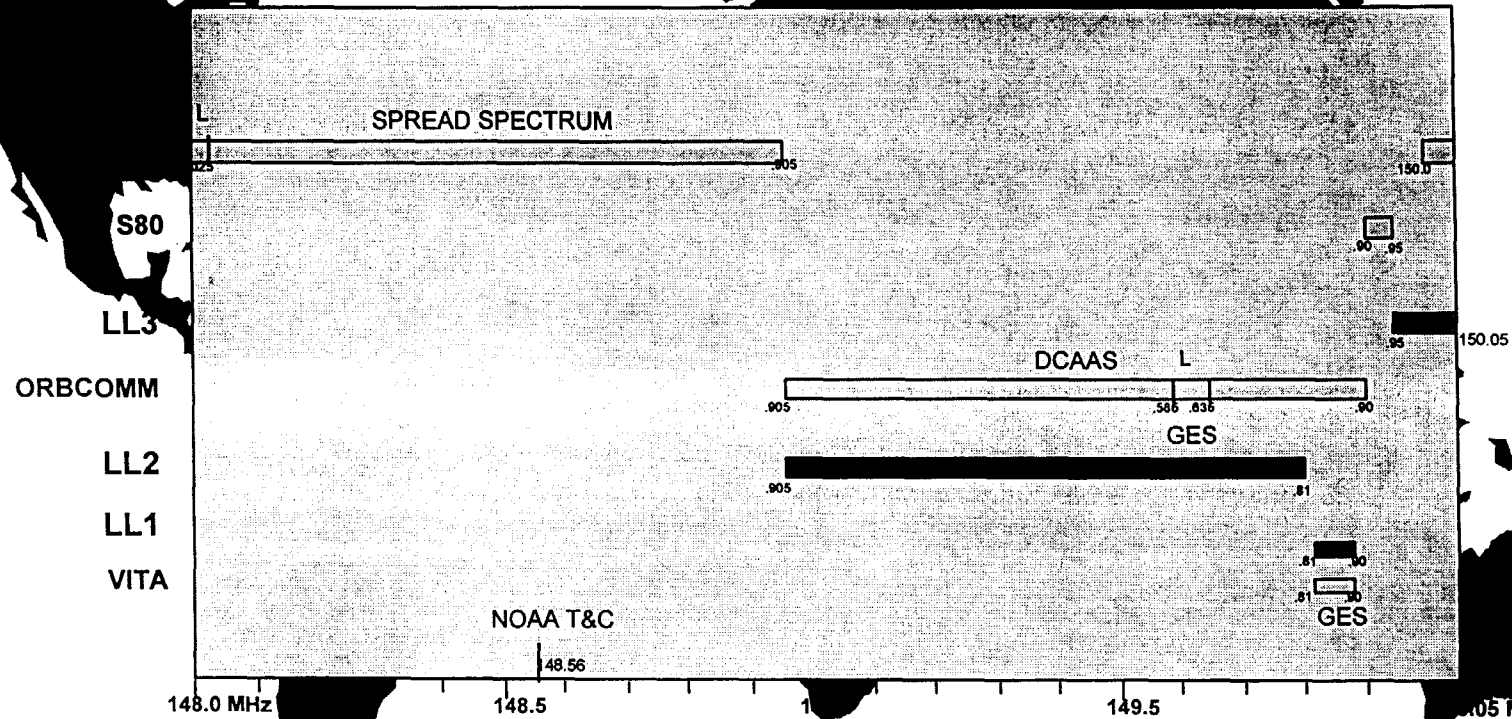
3. OrbcComm might not need to migrate operation into these channels when NOAA begins operation in the 137.025-137.175 Subband, if successful with coordination..

400-401 MHz Downlink Band



NPRM

148.0 - 150.05 MHz



Time Sharing



Use of Multi-Receive User Terminal

One Government

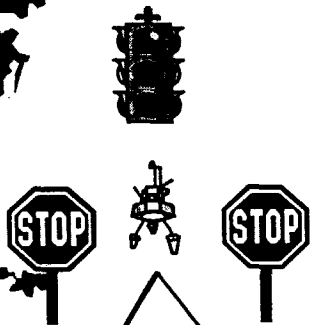


Receive at
Two different Frequencies

High Requirements and Complexity
Increase Terminal Cost

Use of Multi-Receive User Terminal

Two Governments



able
require MSS to
which to stop

Even a Multi-receive User
terminal will not work

This will Cause as Much as
32% Coverage Outage

Systems A&B

- Downlink: Entire available spectrum in 138 MHz band
- Downlink: Entire available spectrum in 138 MHz band

	Coverage ¹	Outage ²	Downlink Capacity ³
System A:	68%	32%	90%
System B:	68%	32%	92%

1 LEO-ONE USA Comments Dated 12/20/96, Appendix E, pg 16

2 Outage% = 100 - Coverage%

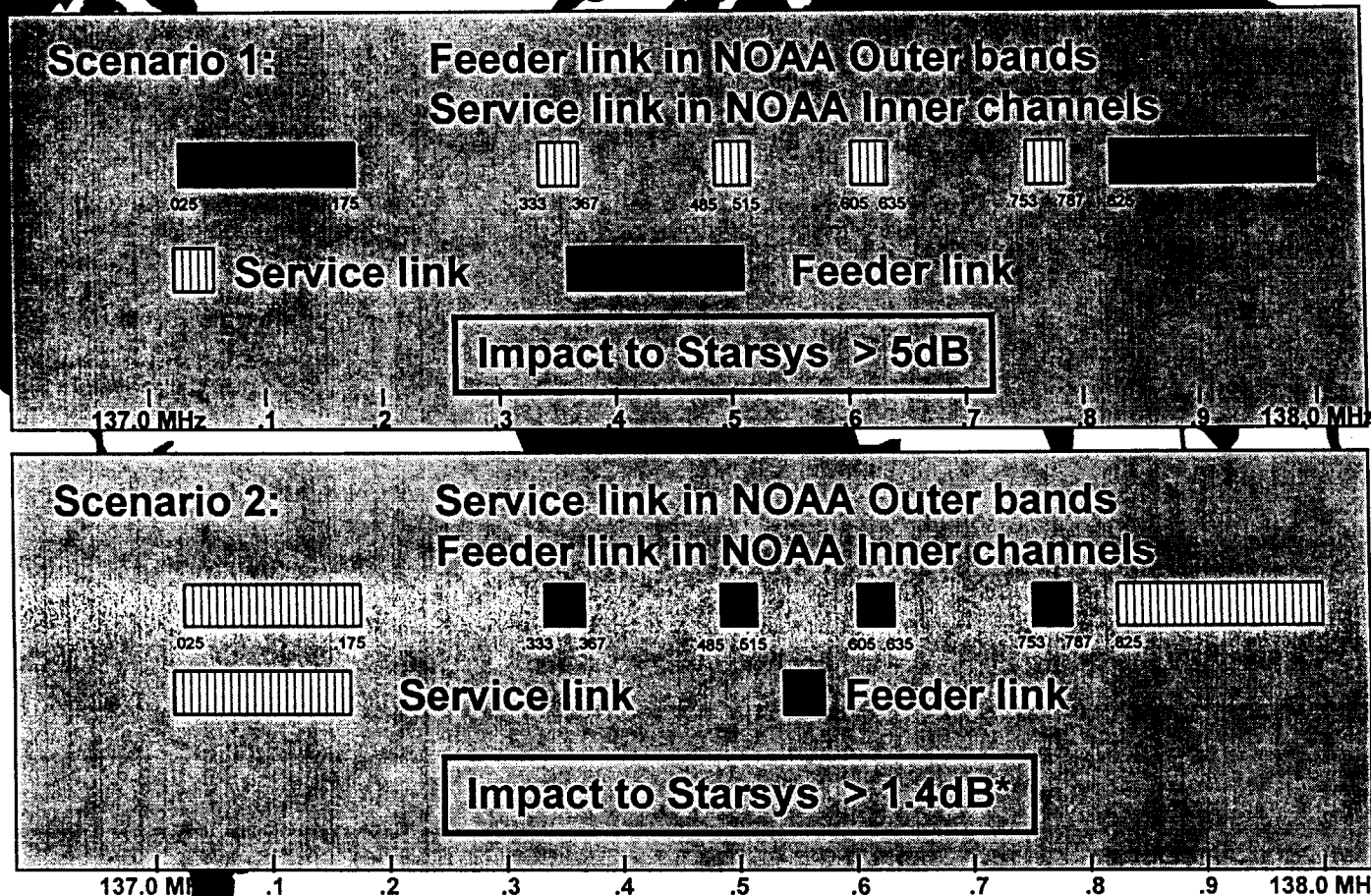
3 LEO-ONE USA Comments, Dated 12/20/96 Appendix B pg 3

System A Downlink



System B Downlink

Both Service and Feeder link Operations in 137-138 MHz Band



Concerns with A/B Plan

• Negative Impact on Starsys

– Requires unnecessary degradation

– Requires power reduction in system B

- ◆ Time-Sharing With Non-Ordinary Users With Starsys and Other Users of the Same Place System B at Significant Disadvantage
- ◆ Unbalanced Uplink-Downlink Throughput for System A
 - ITU Study support more Uplink requirement than Downlink
- ◆ More Than One Applicant Desires to Operate in the Proposed System A Downlink

X/Y Band Sharing

February 21, 2007

Provided General Concept for X/Y Bands
Without Specifics

- ◆ Provided Fungible
- ◆ Was a First Step Toward an Industry Solution

X/Y Band Sharing

- 
- ◆ Updates All Second Order CTA
 - ◆ Allows E-Sat to Operate CMA
 - ◆ Provides CTA Adequate for the System
 - Provides two Fungible CTA for Analysis and
 - ◆ LEO C
 - ◆ Reduces to Starsys
 - ◆ Provides for Expansion Scenario for Orbcom

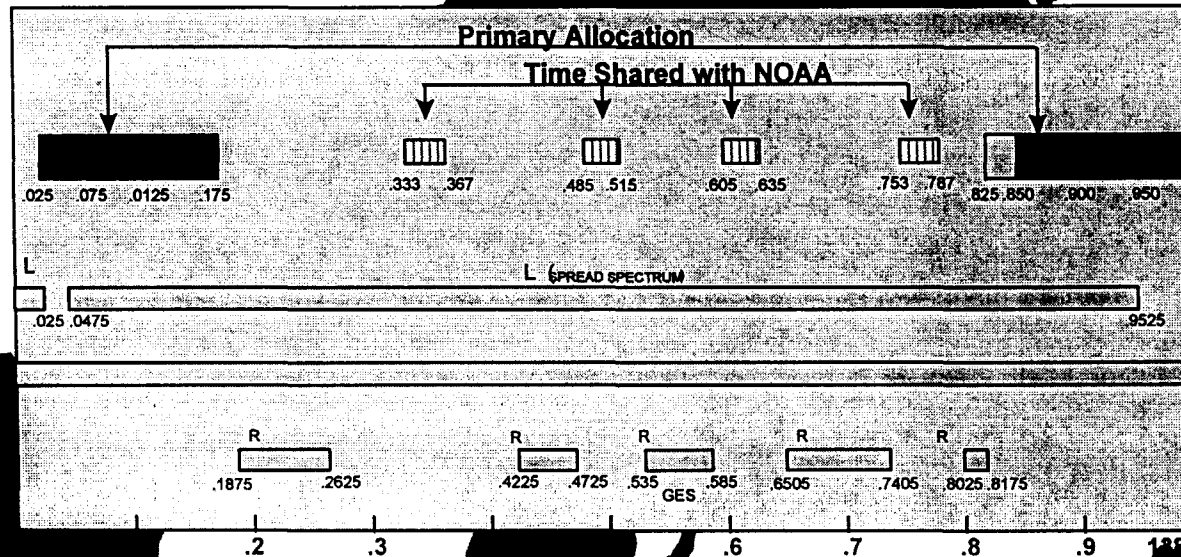
X/Y Band Sharing

Details of 137.0-138.0 MHz

- Systems X and Y can Utilize the band for Feeder Link Operations
- Systems X and Y can Utilize the band on both sides of NOAA outer boundary
- Systems X and Y can also Utilize NOAA inner channels for Feeder Link Operations
- ◆ CTAS can Utilize its Allocation in NOAA's Outer band for both Service and Feeder Link Operations: 137.025-137.075 & 137.950-138.0

X/Y Band Sharing

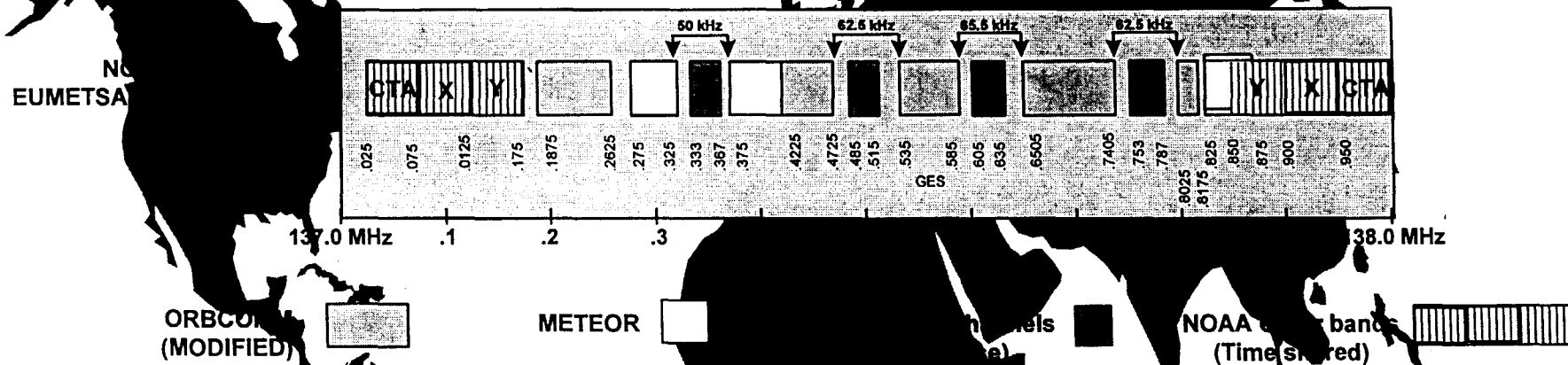
Before NOAA's Migration



Total Impact to STARSYS: 0.2 dB
STARSYS Margin: 0.7 dB

X/Y Band Sharing

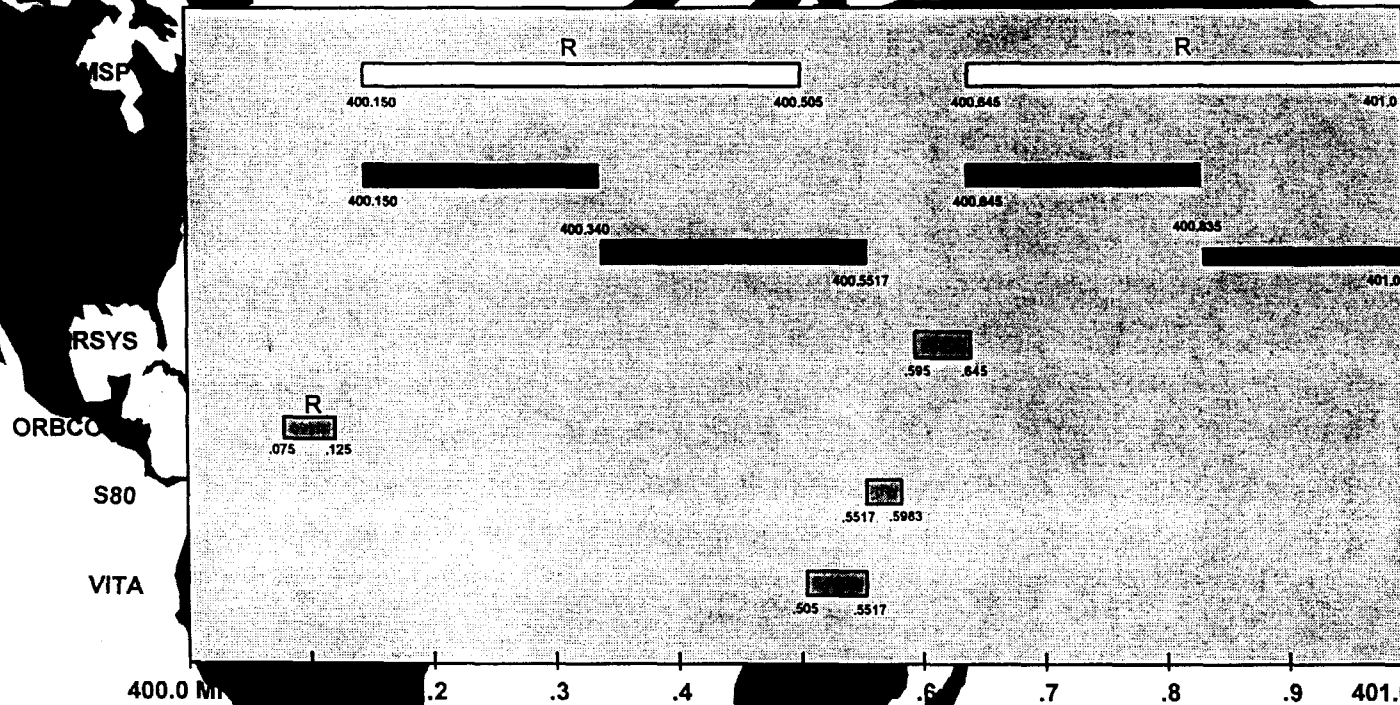
After NOAA's Departure



- ◆ NOAA bands can be time shared
- ◆ NOAA channels (+ guard) can be used as primary
- ◆ Starsys can be permitted to increase its power by 3dB
 - Systems X and Y can perform link operation in the 137.5 MHz band with any significant restriction when in the STARSYS main beam
 - Orbcomm service link channel(s) may also be able to operate at high power level when in the Starsys main beam
- ◆ Additional spectrum could be utilized for feeder link by Systems X and Y, and for service link by Orbcomm

X/Y Band Sharing

400-401 MHz Downlink Band



- ◆ Provide Two Fungible Downlink Bands for Service links and Additional Feeder links
- ◆ Provides more Balanced Uplink-Downlink Throughput

X/Y Band Sharing

148.0-150.05 MHz PLIN BAND

Feeder Links:

CTA: 149.950-149.975 MHz

X: 149.975-150.0125 MHz

Y: 150.0125-150.05 MHz

◆ Service Links:

- X, Y, & Z: 148.905-149.0125 MHz

◆ Coordination

- Allocation of 455-456 and 460-461 MHz bands would reduce congestion in the 148-150 MHz band
- Allocation of S80-1 (50 kHz) for uplink feeder link in the U.S. would enable Starsys to move its ground station operation and therefore reduce potential interference to E-Sat

Conclusion

- 
- ◆ 137-138 MHz Band Sharing Plan
 - ◆ Interference to Starlink and 137-138 MHz Band
 - ◆ Use of Feeder Link for Two Large Systems
 - ◆ Milestones NOAA Coordination
 - ◆ Potential Spectrum Wastage if Using Will Be Reduced
 - If the operator does not meet its milestones, the other operator(s) can utilize the unused spectrum

Summary

Two Solutions

B Plan

CTA and Final Approval

– LEO One Would be the Best System

– Significant Coordination Be Required With
MHz Band Users

- ◆ X/
- Supported by Majority
- Provides an Industry Solution
- Minimizes Impact to the Existing Licensees